

BEFORE
THE UNITED STATES SENATE
COMMITTEE ON ENERGY AND NATURAL RESOURCES

TESTIMONY OF THE HONORABLE PAUL A. CENTOLELLA, COMMISSIONER,
PUBLIC UTILITIES COMMISSION OF OHIO

Full Committee Hearing: to Receive Testimony on Energy Efficiency Resource Standards

April 22, 2009

Mr. Chairman and Members of the Committee, thank you for the opportunity to speak with you on this Earth Day about how best to improve U.S. energy efficiency.¹

Last year, the Ohio General Assembly passed bipartisan legislation establishing efficiency standards that will require Ohio electric utility energy efficiency programs to achieve energy savings in excess of 22% of annual energy consumption by 2025² and produce more megawatt-hours of energy savings than are required under any other State's energy efficiency standard.³ Last week, the Ohio Commission adopted final rules implementing the efficiency standard, as well as a separate peak demand reduction standard, renewable and advanced energy standards, and greenhouse gas reporting and planning requirements.⁴

I was appointed by Governor Strickland to the Ohio Commission in April 2007. During the twenty-five years preceding my appointment, I was a consultant advising utilities and regional transmission organizations on operational and regulatory issues and in the development of regional electricity markets, served as one of the principal policy consultants to the U.S. Department of Energy during the early years of electric industry restructuring, and worked as a Senior Attorney and the Senior Energy Policy Advisor for Ohio's residential utility consumer advocate.

Today, I will briefly address the foundations of economic and regulatory policy related to energy efficiency, describe Ohio's energy efficiency standard, and address how to develop an effective State – Federal partnership, in which Federal efficiency legislation could provide a catalyst for needed efficiency improvements, while preserving the essential role of the States in regulating the delivery and retail sale of electricity and natural gas.

I. Energy Efficiency: A Policy Framework

In the last few years, markets for natural gas and for the skills, materials, and fuel needed by our electric power system have become global. In the next few decades, demand will increase significantly for the services – light, heat, and drive power – that energy provides, at a time when we will need greater infrastructure investment and may be making sharp reductions in greenhouse gas emissions. These changes present major challenges to our ability to provide American consumers and businesses reliable and affordable energy services.

Our power system will need to become both more efficient and more resilient, with an overlay of information and communications systems that are both secure and open, to foster third party innovation. This “smart grid” will become the platform for more efficient pricing, applications that manage and reduce energy consumption, reliability improvements, distributed generation and storage,

¹ This testimony reflects my views regarding general policy issues and does not reflect an opinion regarding any case currently pending before the Public Utilities Commission of Ohio.

² Section 4928.66, Ohio Revised Code.

³ A description of different state standards is contained in: L. Furrey, S. Nadel, and J. Laitner. 2009. *Laying the Foundation for Implementing a Federal Energy Efficiency Resource Standard*. Appendix B. Washington, D.C.: American Council for an Energy Efficient Economy.

⁴ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Opinion and Order* (April 15, 2009). Under Section 4903.10, Ohio Revised Code, parties have thirty days to file applications for rehearing. Final rules are subject to review by the General Assembly's Joint Committee on Agency Rules.

and plug-in vehicles. The electric utility of the future may look very different from today's power companies.

Policies will need to both address key challenges and adapt to major changes in the utility industry.

Policies that promote cost-effective energy efficiency improvements are an essential means of lowering energy costs for consumers, reducing environmental impacts, and protecting our national security. The Ohio Commission has long recognized that improving energy efficiency is an integral part of natural gas policy. Ohio's electric efficiency standard represents the minimum efficiency savings required by statute. The Commission's rules are designed to require electric utilities to deploy all cost-effective energy efficiency measures.⁵

Many studies have documented a large, unrealized potential to make additional cost-effective efficiency improvements. This potential represents a case in which markets by themselves have not produced the economically efficient result. Most consumer decisions which impact energy use occur in a context where energy efficiency is not the central consideration. Consumers are seeking a warm house, light by which to read a book, or a new assembly line to expand production. Natural gas and electricity are used only as a means to obtain these services. Well designed utility energy efficiency programs can address market failures.⁶

Historically, building codes and appliance efficiency standards, which set a floor for efficient energy use, and utility programs that pull more efficient technologies into the market have been among the most effective means to encourage improvements in energy efficiency. In the future, near real time feedback to consumers regarding their energy use and other non-utility applications, which may ride on a smart grid platform, could transform the efficiency with which consumers use energy. Our policies should be sufficiently flexible to adapt to such change, as it occurs on a state-by-state basis.

II. Ohio's Energy Efficiency Standard

On May 1, 2008, Ohio Governor Ted Strickland signed into law Senate Bill 221 to maintain "predictable and affordable electricity rates" and "aggressively attract renewable and advanced energy investment in Ohio in order to create jobs and recognize the influence of global climate change."⁷ Ohio's new electricity law contains an energy efficiency standard and a separate peak demand reduction standard that significantly alter the trajectory of changes in annual electricity consumption, measured in megawatt-hours per year, and peak demand, the highest quantity of megawatts delivered at any point during the year.

Ohio law requires the Commission to promote and encourage energy conservation.⁸ Our new electricity law also makes it state policy to "encourage innovation ... demand-side management, time-

⁵ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Opinion and Order* (April 15, 2009) at 6.

⁶ For a more detailed discussion, see: *In the Matter of the Application of Vectren Energy Delivery of Ohio, Inc.*, Public Utilities Commission of Ohio Case No. 05-1444-GA-UNC, *Supplemental Opinion and Order, Concurring Opinion of Commissioners Centolella and Lemmie*, (June 27, 2007).

⁷ Gov. Ted Strickland, *Press Release* (April 22, 2008).

⁸ Section 4905.70, Ohio Revised Code.

differentiated pricing, and implementation of advanced metering infrastructure” and requires the Commission to effectuate this policy.⁹

Ohio’s efficiency standard requires each electric utility to implement energy efficiency programs that achieve energy savings that meet or exceed annual benchmarks. Beginning in 2009, each utility is required to implement energy efficiency programs that achieve energy savings equal to three-tenths of one percent of energy delivered during a rolling three year baseline. The savings requirement is an additional five-tenths of a percent in 2010, seven-tenths of one per cent in 2011, eight-tenths of one per cent in 2012, nine-tenths of one per cent in 2013, one per cent from 2014 to 2018, and two per cent each year thereafter, achieving a cumulative, annual energy savings in excess of twenty-two per cent by the end of 2025.¹⁰ The baseline is the rolling average of total, annual, and normalized kilowatt-hour sales of distribution service during the three calendar years preceding the compliance year.¹¹

Based on the Commission’s 2008 forecast of expected load growth and assuming no further improvements in appliance standards or building codes, meeting these efficiency standards could reduce Ohio’s total annual electricity use by 2025 to a level that is below 2007 electricity consumption by more than 13.8 million megawatt-hours.

In addition to the energy efficiency standard, each utility must implement peak demand reduction programs designed to achieve a one per cent reduction in peak demand in 2009 and an additional seventy-five hundredths of one per cent reduction each year through 2018.¹²

In addition to traditional utility efficiency programs, such as information, financing, and rebate programs, utilities may meet these standards based on energy savings (or in the case of the peak demand reduction standard, demand reductions) from:

- The commitment of mercantile customer energy savings to utility programs: Large commercial and industrial customers can enter into arrangements with a utility allowing the utility to count savings in excess of what could have been achieved by adopting industry standard new equipment or practices.¹³
- Transmission and distribution investments that reduce line losses: The utility may count the net impact on losses of such improvements.
- Demand response programs: Demand response involves a change in customer demand as a result of price signals or other incentives.

An electric utility may not count toward meeting its benchmarks measures that must be adopted to comply with appliance or equipment standards or an applicable building code.¹⁴

The Commission’s rules allow utilities to bank surplus energy savings and apply those savings toward meeting a subsequent year’s energy efficiency benchmark. Banking encourages aggressive

⁹ Sections 4928.02(D) and 4928.06(A), Ohio Revised Code.

¹⁰ Section 4928.66(A)(1)(a), Ohio Revised Code.

¹¹ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Chapter 4901:1-39.

¹² Section 4928.66(A)(1)(b), Ohio Revised Code.

¹³ Given that these customer initiated investments are outside of planned utility programs, our rules do not attempt to quantify savings from what might be claimed to be acceleration in the purchase of new equipment, prior to the end of the useful life of existing equipment.

¹⁴ Additionally, behind-the-meter generation is not counted towards meeting Ohio’s peak demand reduction or energy efficiency standards.

implementation of efficiency programs and eliminates any incentive for utilities to interrupt programs when annual benchmarks have been met or to pursue only minimal compliance.¹⁵

Ohio law gives the Commission flexibility to address changing and unanticipated conditions that may emerge during the implementation of the standard. For example, a utility may file an application to amend its benchmark, if it is unable to meet the benchmark due to regulatory, economic, or technological reasons beyond its reasonable control.¹⁶ In any such application, the utility must demonstrate that it has exhausted all reasonable compliance options.¹⁷ The law allows the Commission to reduce a utility's baseline to account for new economic growth.¹⁸ However, the Commission has said that, "We expect that any baseline adjustments made to account for economic growth typically will be temporary, and will address circumstances in which unanticipated increases in the overall rate of growth have made full compliance infeasible. We also expect that any adjustments will account not only for positive economic growth, but also negative economic growth."¹⁹ Additionally, baseline sales will be normalized for weather and for other impacts on numbers of customers, sales, and peak demand that are outside of the utility's control.

The standards are embedded within a public process that provides for Commission review of utility program planning and compliance. This review process is as important as the standards themselves. The success of efficiency programs is measured by their ability to influence consumer behavior. Successful utility programs require the support of stakeholders, trade allies such as building contractors and retailers, and the public. Commission review provides an opportunity for public input and a transparent process for assessing what works in a specific local environment.

Utilities must complete an assessment of the technical, economic, and achievable potential for reducing energy usage and peak demand through cost-effective measures and programs. Every three years, each utility must file a comprehensive program portfolio which meets or exceeds its efficiency benchmarks and includes programs for all customer classes that encourage innovation and market access for all cost-effective energy efficiency.²⁰ The Commission will hold hearings to review these assessments and program portfolio plans.

Cost-effectiveness is measured under a "total resource cost test" which compares avoided supply costs to demand-side measure and program costs borne by the utility and participants.²¹ And, the utility may propose additional programs that provide substantial non-energy benefits, including low

¹⁵ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Section 4901:1-39-05(E).

¹⁶ Section 4928.66(A)(2)(b), Ohio Revised Code.

¹⁷ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Section 4901:1-39-05(F).

¹⁸ Section 4928.66(A)(2)(a), Ohio Revised Code.

¹⁹ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Opinion and Order* (April 15, 2009) at 18.

²⁰ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Sections 4901:1-39-03 and 39-04.

²¹ For a complete definition, see: *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Section 4901:1-39-01 (W).

income customer participation, emission reductions not fully reflected in cost savings, or enhanced system reliability.²²

Each utility is required to file an annual status report that includes a measurement and verification report by an independent program evaluator.²³ The public may comment on these reports. The Commission's Staff will review the status reports and comments and publish its findings and recommendations regarding program implementation and compliance. The Commission may hold public hearings on a utility's status report. And, the Commission will file an annual verification report regarding benchmark compliance as required by statute.²⁴

To summarize, Ohio's energy efficiency standard requires a comparable or greater annual percentage of electric efficiency savings and more total megawatt-hours of energy savings than any other State efficiency standard. The maximum additional annual savings under the Ohio standard is two-percent per year. Although it considers improvements in the compliance year attributable to appliance and building standards, S. 548 requires at least two-and-one-half percent savings in years 2018 through 2020. Unlike Ohio's rules, S. 548 does not appear to authorize banking of surplus energy savings.²⁵ And, S. 548 covers gas as well as electric utilities.

Ohio's efficiency standard is grounded in a public review process at the Commission covering the assessment of efficiency potential, program planning, and compliance. Our statute gives the Commission flexibility to respond to unforeseen and changing local conditions.

Finally, Ohio's energy efficiency standard is part of a broader set of State and Commission policies. It complements standards for peak demand reduction, renewable and advanced energy resources. Demand-side management and energy efficiency improvements in excess of what are required to meet Ohio's efficiency standard can be applied to Ohio's advanced energy requirement.²⁶ However, energy savings are not counted toward meeting the renewable energy standard and cannot be double counted to meet multiple requirements.²⁷

²² *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Sections 4901:1-39-04(B) and 39-01 (O).

²³ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Section 4901:1-39-05.

²⁴ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Section 4901:1-39-06.

²⁵ In certain circumstances, S. 548 permits limited bilateral transfers of savings among utilities in a single state or electric utilities in a single power pool. The Ohio Commission has considered authorizing a more flexible trading system using energy efficiency credits. However, we are not aware of an available and suitable energy efficiency credit tracking program. We will reconsider the issue should such a program be created. *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Opinion and Order* (April 15, 2009) at 23.

²⁶ Section 4928.01(34)(g), Ohio Revised Code.

²⁷ *In the Matter of the Adoption of Rules for Alternative and Renewable Energy Technology, Resources, and Climate Regulations*, Public Utilities Commission of Ohio Case No. 08-888-EL-ORD, *Final Rules* at Sections 4901:1-40-01(M) and 4901:1-40-04(D)(4)

The Commission has approved smart grid proposals and utility scale Advanced Metering Infrastructure (AMI) deployments for Duke Energy Ohio and American Electric Power.²⁸ These investments will provide capabilities needed to implement efficient retail pricing and support applications giving consumers real-time feedback regarding their energy use. The challenges we face require us to pursue a range of policies in different regulatory and policy frameworks.

Our Commission has avoided treating energy efficiency only “as a resource in utility planning.” Treating energy efficiency as a resource provided a useful way of talking about utility efficiency programs in the context of Integrated Resource Planning, as it was widely practiced in the 1980s and continues to be used in more limited contexts today. However, the metaphor that demand-side measures are resources, just like generation, has been a barrier to the recognition of price responsive demand in Regional Transmission Organization (RTO) resource adequacy rules and could threaten investments in AMI and smart grid. “Price responsive demand” is the predictable response of consumers on dynamic retail rates that reflect increases in wholesale prices. While the demand of these consumers falls when spot prices increase, these predictable demand reductions are not dispatched by an RTO system operator and may not qualify as an RTO “resource.” The Ohio Commission is working closely with the PJM Interconnection, L.L.C., and the Midwest Independent Transmission System Operator to reform RTO tariffs to treat price responsive demand as a component of the demand forecast, rather than as a resource.²⁹

III. Principles for Evaluating Federal Energy Efficiency Resource Standards

A national standard for utility energy efficiency program savings will lead utilities, which might not otherwise have done so, to implement cost-effective energy efficiency programs. Many utilities do not see running significant efficiency programs for their customers as part of their core business. And, utilities with generation affiliates selling power at market-based prices have an additional disincentive to undertaking efficiency programs. Efficiency improvements, at least in the short run, will tend to place downward pressure on generation prices. Ratemaking reforms that decouple retail distribution rates from sales volumes do nothing to address this disincentive.

I strongly support expanding utility energy efficiency programs. Any energy efficiency standard should be separate from Renewable Energy Portfolio Standards.

However, the Committee must consider whether S. 548 will advance energy efficiency in a cost-effective and administratively efficient manner. The uniform Federal standard created by S. 548 fundamentally changes the role of the Federal government with respect to the distribution and retail

²⁸ *In the Matter of the Application of Duke Energy Ohio, Inc., for Approval of an Electric Security Plan*, Public Utilities Commission of Ohio Case No. 08-920-EL-SSO, *Opinion and Order* (December 17, 2008); *In the Matter of the Applications of Columbus Southern Power Company and Ohio Power Company for Approval of an Electric Security Plan*, Public Utilities Commission of Ohio Cases No. 08-917-EL-SSO and 08-918-EL-SSO, *Opinion and Order and Concurring Opinion of Chairman Alan R. Schriber and Commissioner Paul A. Centolella* (March 18, 2009).

²⁹ For a detailed discussion of these reforms, see: P. Centolella and A. Ott. March 9, 2009. *The Integration of Price Responsive Demand into PJM Wholesale Power Markets and System Operations*. (Available at: <http://www.hks.harvard.edu/hepg/>). See also: P. Centolella. November 13, 2008. *Tariff Proposal on Price Responsive Demand*. (Available at: http://www.midwestiso.org/publish/Document/45e84c_11cdc615aa1_-7ad10a48324a?rev=1).

sale of electricity and natural gas. This results in three fundamental inconsistencies that could limit the proposal's effectiveness and lead to delays and unnecessary litigation.

First, the bill would set a single uniform standard for programs at all utilities. This standard will "reflect the maximum achievable level of cost-effective energy efficiency potential."³⁰ The bill effectively requires the Secretary to set the floor for the minimum savings that utility programs must achieve, at his best estimate of the maximum achievable cost-effective savings. Prices, resource requirements, load growth, climate, the utilities' customer bases, consumer attitudes, existing equipment and buildings, building codes, the rate of adoption of new technology, and current levels of efficiency vary significantly from utility to utility. A uniform standard set at maximum achievable levels is likely to mean that many utilities will be unable to comply.

Second, the fundamental objective is to improve energy efficiency. However, the proposed standard is based on only efficiency improvements resulting from utility programs, codes, and standards. If an efficiency improvement is not among the specified "types of energy efficiency and energy conservation measures that can be counted"³¹ or, except in the case of codes and standards, the utility cannot demonstrate that it "played a significant role in achieving the savings,"³² savings would not be counted toward meeting the standard. This could have the perverse effect of discouraging continuing efficiency improvements without the direct involvement of the utility.

Third, the bill would set a high standard for savings yet any flexibility in compliance is limited to opportunities for bilateral transactions and alternative compliance payments in jurisdictions where State administration has been approved. Experience with similar approaches in environmental regulation suggests the result could be delay and extended litigation. This risk could be minimized with state regulatory oversight and expanded opportunities for banking and trading surplus savings.

These inconsistencies can be resolved through an expanded State – Federal energy efficiency partnership. The states are committed to building such a relationship.

The involvement and support of state regulators is essential to the success of utility efficiency programs. States regulate gas and electric distribution rates and the recovery of energy efficiency program costs; determine rate design and mitigate utility disincentives to achieving energy savings; review and approve utility energy efficiency and integrated resource plans; and balance utility expenditures with their impact on the costs paid by consumers and businesses. State commission proceedings foster public involvement and stakeholder support for efficiency programs. And, state commissions are in a position to act on their unique knowledge of local and utility-specific conditions.

Moreover, the electric power industry is beginning a period in which significant changes are likely to occur. With the development of a smart grid, there will be new opportunities to enhance energy efficiency. And, the prospect of greenhouse gas regulation will focus significant attention on improving energy efficiency. This is a time to encourage innovative approaches to efficiency improvement. States are the natural laboratory for such experimentation.

³⁰ While the initial standards are fixed, the bill would require the Secretary to review and the maximum achievable level in 2014, 2018, and at subsequent ten year intervals. S. 548 at Sections 610 (c)(3)(C) and 610 (c)(4)(A).

³¹ S. 548 at Section 610 (e)(1)(A).

³² S. 548 at Section 610 (e)(1)(I).

An expanded State – Federal efficiency partnership requires more than delegation to the states of the administration of a Federal standard. Decisions regarding what is maximum achievable cost-effective potential and how to pursue it, if at all possible, should be made first at the State level.

Specifically, I would encourage the Committee to modify to S. 548 to:

- Exempt states from the Federal standard and authorize them to implement state requirements where:
 - The State has set, in any form, clearly defined energy efficiency benchmarks;
 - Utilities or the State periodically assess the maximum achievable cost-effective level of energy efficiency improvements and that assessment is subject to public review;
 - The State certifies to the Secretary of Energy that the State has implemented energy efficiency standards and policies designed to achieve maximum achievable cost effective energy efficiency improvements; and
 - The state periodically reports progress toward achieving its benchmarks.For purposes of the exemption, cost effective measures and programs may be defined by Federal statute as based on a total resource cost or societal test.
- To the extent that a State does not develop its own benchmarks, but adopts and administers the proposed Federal standard, authorize the State commission to modify a utility's benchmarks where the utility is unable to meet the benchmark due to regulatory, economic, or technological reasons beyond its reasonable control and has exhausted all reasonable compliance options.
- Authorize banking of surplus energy savings for use in meeting any subsequent year's benchmark.
- Clarify that States may consider energy efficiency to be a resource or a reduction to forecast load for purposes of utility planning and procurement.

Modified in this manner, a national standard could provide a catalyst for state and utility actions to expand cost-effective energy efficiency programs, while preserving the essential role of the states in regulating the delivery and retail sale of electricity and natural gas.